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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,834	12/13/2001	Hang Zhang	7000-105	1048
27820	7590	11/01/2006	EXAMINER	
WITHROW & TERRANOVA, P.L.L.C. P.O. BOX 1287 CARY, NC 27512			HALIYUR, VENKATESH N	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 11/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/020,834

Applicant(s)

ZHANG ET AL.

Examiner

Venkatesh Haliyur

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) Claims 1-5, 7-14, 16-23, 25-27. (Claims 6, 15, 24 canceled) is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) Claims 1-5, 7-14, 16-23, 25-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

1. Applicant's request, see remarks filed on 08/14/2006 for reconsideration of the rejection of claims 1-5,7-14,16-23 and 25-27 under 35 U.S.C. 102(e) communicated via last office action of 3/14/2006 is persuasive and therefore rejection has been withdrawn.
2. The affidavit filed on 08/14/2006 by the applicant(s) under 37 CFR 1.131 is sufficient to overcome the Cheng et al [US Pub: 2002/0191544] reference.
3. Applicant's arguments, see remarks, filed on 08/14/2006, with respect to the rejection(s) of claim(s) 1-5,7-14,16-23 and 25-27 under 35 U.S.C. 102(e) communicated via last office action of 3/14/2006 have been fully considered. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Lee et al [6,718,500] and Chang et al [US Pat: 6,895,010] reference.
4. Claims 1-5,7-14,16-23 and 25-27 are pending in the application. Claims 6,15,24 are canceled.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5, 7-14, 16-23 and 25-27 rejected under 35 U.S.C. 102(e) as anticipated by Lee et al [US Pat 6,718,500] or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lee et al [US Pat 6,718,500] in view of Chang et al [US Pat 6,895,010].

Regarding claims 1, 10, 19, Lee et al disclosed "RLP Communication Device and Method for Mobile Communication System" a method for initiating retransmission of frames (**Figs 1-2**) comprising: detecting a failed attempt to transmit a frame at a physical layer (**item 222 of Fig 2**) of a receiver (**Rx, col 2, lines 52-55**; sending a message from the physical layer of the receiver to a link control layer (**item 212 of Fig 2**) of the receiver to indicate the failed attempt to transmit a frame has been detected (**col 3, lines 13-27**); and upon receipt of the message, sending a retransmission message from the link control layer of the receiver, the retransmission message (**information frame**) configured to cause a sender to retransmit data associated with the frame (**resend packet with the same sequence number of the requested frame**,

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**col 3, lines 4-27)**, wherein the message (**information frame**) is a primitive indication of a failed attempt (**condition of the physical channel**) to receive frames in the physical layer (**col 2, lines 53-61**) [**Figs 1-3, col 2, lines 49-67, col 3, lines 1-27, col 4, lines 1-30**].

Regarding claims 2,11,20 Lee et al. disclosed sequence numbers in RLP data frames to detect and acknowledge frames that have been received in full and proper order (**col 7, lines 31-51**), but fails to disclose that the detecting step further comprises receiving at least a portion of the frame and determining at least a portion of the data associated with the frame is either unrecoverable or corrupted.

However, Chang et al disclosed a method for determining at least a portion of the data associated with the frame is either unrecoverable or corrupted (**col 4, lines 60-67, col 5, lines 1-9**).

Therefore it would have been obvious for one of ordinary skill in the art to use the method of detecting incomplete frames received as taught by Chang et al to include in the system of Lee et al to determine at least a portion of the data associated with the frame is either unrecoverable or corrupted. One is motivated as such to detect whether a portions of the data in a frame recoverable or not in order to limit the number of unnecessary retransmission requests to increase data rate or throughput of the communication system as taught by Chang et al.

Regarding claims 3,12,21 Lee et al. disclosed that the link control layer implements a Radio Link Protocol (RLP) using an RLP entity associated with an application [**Fig 3, items 211,212,221,222 of Fig 2, col 4, lines 15-29**].

Regarding claims 4,13,22, Lee et al disclosed a method of sending a physical layer frame encapsulating data represented by an RLP frame using sequence numbers (**col 4, lines 1-29, col 7, lines 31-51**), but fails to disclose sending step further comprises generating the retransmission message to include identification for one of the group consisting of a recently received RLP frame and recently received data such that the sender can identify data or an RLP frame to retransmit.

However, Chang et al disclosed a frame sequence numbering method with unique identifier for the purposes of retransmitting a failed RLP frame so that the sender can identify data or an RLP frame to retransmit from the group of frames received [**col 4, lines 60-67, col 4, lines 1-9**].

Therefore it would have been obvious for one of ordinary skill in the art to use the method of identifying the group for data or an RLP frame to retransmit in physical layer assisted retransmissions as taught by Chang et al to include in the system of Lee et al to sequence the frames with unique identifier for the purposes of retransmitting a failed RLP frame so that the sender can identify data or an RLP frame to retransmit from the group of frames received. One is motivated as such to speed up the identification of a correct frame to retransmit in order to reduce the retransmission processing delays as taught by Change et al.

Regarding claims 5,14,23, Lee et al disclosed that the frame is a physical layer frame, the method further comprising (**Figs 1-2, col 2, lines 49-56**): receiving the retransmission message at a link control layer of the sender (**transmission side, col 2, lines 57-61**); determining data or a link control layer frame to retransmit; and

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retransmitting the data or link control layer frame requiring retransmission (**col 2, lines 62-65**) [**Figs 1-3, col 2, lines 49-67, col 3, lines 1-27, col 4, lines 1-30**].

Regarding claims 7,16,25, Lee et al disclosed a mechanism for sending an acknowledgement message (**ACK message, col 7, lines 31-52**), but fail to disclose retransmission message is an acknowledgement message. However, Chang et al disclosed a mechanism where in retransmission message can be an acknowledgement message (**col 8, lines 4-14**).

Therefore it would have been obvious for one of ordinary skill in the art to use the method of sending acknowledgement message as a retransmission message as taught by Chang et al to in the system of Lee et al for sending acknowledgement message as a retransmission message in physical layer assisted retransmission. One is motivated as such to send an acknowledge message as a retransmission message in the physical layer to minimize the retransmission delays by limiting the number of requests for retransmissions as taught by Change et al.

Regarding claims 8,17,26, Lee et al disclosed that the frame is a physical layer frame, the method further comprising: sending link control layer frames from the sender over a wireless communication channel to the receiver via physical layer frames from the sender and setting a transmission timer and retransmission counter (**Figs 1-3, col 3, lines 13-27, col 4, lines 1-67, col 5 lines 1-32, col 8, lines 20-32**) but fails to disclose setting a timer upon transmitting each of the link control layer frames from the sender; and resetting the timer upon confirmation the link control layer frames were received or a subsequent link control layer frame is sent.

However, Chang et al disclosed a mechanism for setting a timer upon transmitting each of the link control layer frames from the sender (**col 17, lines 55-67**); and resetting the timer upon confirmation of the link control layer frames were received or a subsequent link control layer frame is sent (**col 19, lines 60-67**) [**Figs 1-7, col 6, lines 60-67, col 7, lines 1-17, col 17, lines 55-67, cols 18-19, lines 1-67**].

Therefore it would have been obvious for one of ordinary skill in the art to use the method of setting and resetting retransmission timers upon confirmation of the link control layer frames were received as taught by Chang et al in the system of Lee et al for setting a timer upon transmitting each of the link control layer frames from the sender; and resetting the timer upon confirmation of the link control layer frames were received or a subsequent link control layer frame is sent. One is motivated as such to use retransmission timers to monitor the timeouts of transmitted frames to reduce the waiting or idle time as taught by Change et al.

Regarding claims 9, 18, 27, Lee et al disclosed a timer mechanism for setting transmission timer and retransmission counter (**col 8, lines 20-32**), but fails to disclose that a timer for one of the link control layer frames expires, sending one of the group consisting of a request message to the link control layer of the receiver from the sender requesting identification of a last portion of data or link control layer frame received by the link control layer of the receiver and data or a link control layer frame associated with the timer expiration.

However, Chang et al disclosed a mechanism for a timer for one of the link control layer frames expires, sending one of the group consisting of a request message to the



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link control layer of the receiver from the sender requesting identification of a last portion of data (**retransmission indicator in the RLP frame**) [Figs 1-7,col 6, lines 60-67, col 7, lines 1-44].

Therefore it would have been obvious for one of ordinary skill in the art to use a timer to monitor expiration transmission time of one of the link control layer frames and sending one of the group consisting of a request message to the link control layer of the receiver from the sender requesting identification of a last portion of data as taught by Chang et al in the system of Lee et al for using timer for one of the link control layer frame expiration value to sending one of the group consisting of a request message to the link control layer of the receiver from the sender requesting identification of a last portion of data. One is motivated as such to use retransmission timers to monitor the timeouts of transmitted frames to reduce the waiting or idle time as taught by Change et al.

### ***Response to Amendment***

7. Applicant's amendment, see Remarks, filed on 8/14/2006, with respect to the rejection(s) of claim(s) 1-27 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection.

### ***Conclusion***

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8. Any inquiry concerning this communication or earlier communications should be directed to the attention to Venkatesh Haliyur whose phone number is 571-272-8616. The examiner can normally be reached on Monday-Friday from 9:00AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached @ (571)-272-3139. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (571)-272-2600 or fax to 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197(toll-free).

Venkatesh Haliyur

Patent Examiner

vh  
10/26/06

  
RICKY Q. NGO  
SUPERVISORY PATENT EXAMINER